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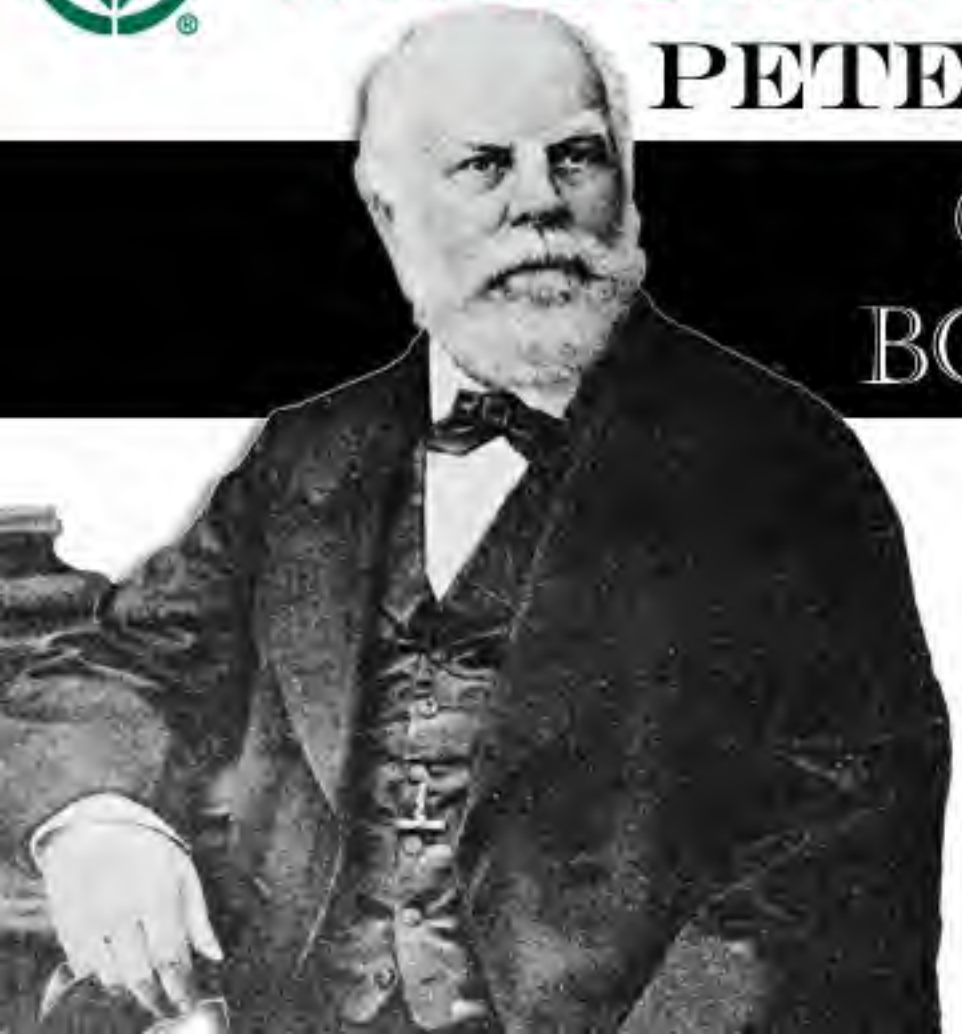

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Further notes on CERBUS GIGANTEUS.

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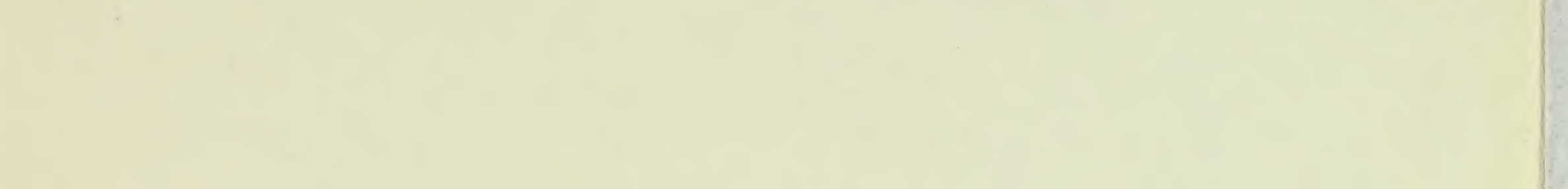
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NOTES ON CEREUS GIGANTEUS, Etc.

1857

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FURTHER NOTES

ON

CEREUS GIGANTEUS

OF SOUTHEASTERN CALIFORNIA,

WITH A SHORT ACCOUNT OF ANOTHER ALLIED SPECIES IN SONORA.

By Dr. GEORGE ENGELMANN, St. Louis, Missouri.

EXTRACTED FROM THE AMERICAN JOURNAL OF SCIENCE AND ARTS, VOL. XVII, SECOND SERIES.
MARCH, 1854.

Specimens of flowers and fruit, together with interesting notes and drawings communicated by Mr. George Thurber, and specimens of ribs of the plant with spines presented by Dr. Parry, enable me to perfect the history of this giant Cactus.* Mr. Thurber travelled through the Gila country and Sonora, as one of Mr. Commissioner Bartlett's party, in the summer of 1851, and is believed to be the only scientific gentleman who has seen the plant in question in flower. These materials enable me to furnish the following detailed character.

Cereus giganteus, *Engelm.:* erectus, elatus, simplex, s. ramis paucis erectis caule cylindrico versus apicem sensim attenuato brevioribus candelabriformis; vertice applanato tomentoso; costis ad basin caulis sub-12 versus apicem 18–20 rectis obtusis (vetustioribus ad caulis basin obtusissimis) subrepandis; sinubus ad basin caulis latissimis versus apicem profundis angustioribus angustissimisque; areolis prominentibus ovato-orbiculatis junioribus albido-tomentosis; aculeis rectis basi valde bulbosis tenuiter sulcatis angulatisque albidis demum cinereis, radialibus 12–16 imo summisque brevioribus, lateralibus (præcipue inferioribus) longioribus robustioribus subinde cum aculeis adventitiis paucis setaceis summo areolæ margini adjectis; aculeis centralibus 6 robustis albidis basi nigris apice rubellis demum totis cinereis, 4 inferiori-

* See this Journal, New Series, vol. xiv, page 335, Nov., 1852.

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bus decussatis quorum infimus longissimus robustissimus deflexus, 2 superioribus lateralibus brevioribus; floribus versus apicem caulis ramorumque sparsis, tubo ampliato breviusculo petalisque patulis; ovario ovato sepalis 25–30 squamiformibus triangulatis acutis in axilla fulvo-villosis stipato; sepalis tubi sub-30 orbiculato-subtriangularibus mucronatis, inferoribus in axilla lanigeris, superioribus nudis, sepalis intimis 10–15 spathulatis obtusis carnosis (pallide viridibus albescentibus); petalis sub-25 obovato-spathulatis obtusis integris crispatis coriaceo-carnosis crassis (flavescenti-albidis); staminibus numerosissimis, filamentis superiori tubi parti adnatis (inferiore nudo); stylo stamina paulo superante; stigmate multifido; bacca obovata squamis sepaloideis triangularibus carnosis minutis ad axillam fulvo-lanatis stipata, pericarpio duriusculo carnoso, demum valvis 3–4 patentibus reflexisve dehiscente; seminibus numerosissimis in pulpa saccharina nidulantibus oblique obovatis lævibus lucidis exalbuminosis; embryone cotyledonibus foliaceis incumbentibus hamato.

This species ranges from north of the Gila river southwardly into Sonora, to within 20 miles of Guaymas on the Californian Gulf. It doubtless also occurs on the Peninsula of California; where, according to Vanegas in his history, published about 100 years ago, the fruit of a great Cactus forms an important article of food to the natives of the eastern coast, the harvest time of which was a season of great festivity. The flowers are produced in May and June, and the fruit ripens in July and August. Mr. Thurber collected the last flowers and the first ripe fruit in the beginning of July. He has collected abundance of seed, and will be pleased to communicate it to those who take an interest in the cultivation of Cacti. The youngest plants Mr. Thurber noticed were three or four feet high, with narrow furrows and long spines; the smallest flowering plants were about 12 feet high, and the tallest specimens observed appeared to reach the elevation of 45 or 50 feet.

The ligneous fascicles correspond with the intervals between the ribs, and not with the ribs themselves; of which Dr. Parry has fully satisfied himself, and which indeed is the case in all ribbed Cacti. From between these bundles ligneous fibres radiate horizontally towards the ribs, and especially to the areolæ.

At the base of the stem the ribs are broad and obtuse, with wide and shallow intervals; upwards the ribs are somewhat triangular, rounded or obtuse, with deep and acutish grooves between them; towards the top of the plant the ribs are equally obtuse, but quite compressed, and the grooves are deep and narrow.

The elevated areolæ are 7 lines long, nearly 6 lines in diameter, about an inch distant from one another, sometimes more closely approximated.

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Lowest and upper radial spines 6 to 12 lines long, sometimes the upper ones with a few additional, shorter, flexuous, setaceous spines: lateral ones 12–18 lines long, the lower ones longest; the four lower central spines straight or very slightly curved downwards, 20–30 lines long; the two upper central spines 15 to 18 lines long. The stoutest spines are one line in diameter, their bulbous base being fully twice as thick. The old spines together with the whole areola readily come off in one bunch, but generally the 6 central spines fall off first, leaving the radiating ones appressed to the stem, till finally they also fall away.

The flowers are produced near the summit of the plant, but not on it, and the fruit is usually 6–12 inches from it.

The dried flower communicated by Mr. Thurber is 3 inches long; but the drawing represents the flowers as fully 4 inches in length and diameter. The ovary in the dried specimen is $\frac{3}{4}$ths of an inch long; the lower naked part of the tube 1 inch, the upper staminiferous much widened part $\frac{3}{4}$ths of an inch long. Upper sepals fleshy, greenish white, $\frac{3}{4}$ths of an inch long, below 2, above 4 lines wide. Petals of a light cream color, an inch long, 6–7 lines wide above, very thick and fleshy, and very much curled. Filaments light yellow, adnate to the upper half of the tube: anthers 0·8 to 0·9 of a line long, linear, emarginate at the base and apex. Style not seen; the drawing represents the numerous (15–20?) stigmata as half an inch long, suberect, of a green color. The flowers appear to be open night and day, and probably for several days in succession.

The fruit sent by Mr. Thurber (in alcohol) is obovate $2\frac{1}{2}$ inches long, by $1\frac{1}{2}$ in diameter, beset with about thirty scales, having short brownish wool in their axils, but entirely destitute of spines. Mr. Thurber informs me that this specimen is unusually long: the fruit, he says, is usually 2 or 3 inches long by $1\frac{1}{2}$ to 2 in diameter; the color is green, reddish towards the summit; the remains of the flower fall off, leaving a broad and convex scar. The pericarp has the hardness of a green cucumber, somewhat softer towards the apex, and is about 2 lines thick: it bursts open on the plant with 3 or mostly 4 irregular, interiorly red valves, which spread horizontally, and appear like a red flower when seen at a distance, which accounts for the report of this species having red flowers. The crimson-colored and rather insipid pulp has the consistency of a fresh fig; it completely separates from the rind, and drying up from the heat of the sun, falls to the ground, or is beaten down, when it is collected by the natives and rolled into balls, which keep several months, or is pressed for the thick molasses-like sacharine juice which it contains. The innumerable seeds are 0·7 to 0·8 lines long.

Another, apparently nearly allied species, was collected in Northern Sonora. From the half of a flower before me, together

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with Mr. Thurber's meagre notes, (other specimens unfortunately having been lost,) I have ventured to make out the following description:

Cereus Thurberi (n. sp.): erectus, elatior, e basi ramosus sub-14-costatus, sulcis parum profundis, aculeis brevibus nigricantibus; floribus tubuloso-campanulatis virescenti-albidis; ovario globoso sepalis 80–100 carnosis squamiformibus triangularibus acutis imbricatis ad axillam villosis stipato; sepalis tubi inferioribus 24 lanceolatis acutiusculis axilla nudis, superioribus 20–25 orbiculato-obovatis obtusis; petalis 16–20 obovato-spathulatis obtusis crassis.

Collected in June 1851, in a rocky cañon near the mountain pass of Bacuachi, a small town on the road to Arispe, in Sonora; afterwards found with *Cereus giganteus*, near Santa Cruz: it abounds also near Magdalena and Ures. Santa Cruz appears to be the northern limit of this species, which does not extend to the Gila river. Stems 4 to 12 feet high, many from the same base, 6 to 10 inches in diameter, sometimes articulated, occasionally branching above, with about 14 ribs and shallow grooves. Flowers greenish white, borne about a foot below the summit of the stem. Dried flower $2\frac{3}{4}$ inches long; the tube narrower, and more elongated than in *C. giganteus;* the globose ovary and the naked and staminiferous part of the tube each about $\frac{3}{4}$ inch long; free part of petals of the same length, and 4 lines wide. Anthers much larger than in the foregoing species, 1·3 to 1·4 lines long. Style not seen.

I have dedicated this to the collector, Mr. George Thurber, of Rhode Island, an excellent botanist, who has kindly furnished me with the materials for this article.

Cereus Thurberi and *C. giganteus* appear to be closely allied species. They have high and erect stems, flowers with a short tube, half of which is naked, the filaments occupying only the upper half of the tube; both have short and fleshy sepals on the ovary, with short wool in their axils, unaccompanied by any bristles or spines; in both the petals are whitish, obtuse, and fleshy.

Both, and especially *C. giganteus*, stand very near the *Pilocerei* on account of the great height of the stem, the short ventricose tube of the flower, and the thick petals; but they have not the least indication of a *cephalium* (or woolly head) nor of any particular development of wool; their flowers spring from the axils of the ordinary and unaltered areolæ; and the seed is quite different, at least from that of *Pilocereus senilis*, the only species of that genus, I believe, which has been well examined; these seeds are said to be obliquely thimble shaped, densely dotted, and to have an embryo with thick globose cotyledons. It is also said that the filaments cover the whole inside of the tube of the flower,

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and even the free upper part of the ovary. In all the *Cerei* and *Echinocacti* examined by me, I find the lowest part of the tube free, the filaments being adnate to some distance above the ovary. It is not improbable that the Chilian velvety *Cerei* (*Velutini*, Pr. Salm.) are to be classed near our species. The flower of what appears to be *Cereus Chilensis*, Pfr., obtained near Valparaiso, and figured by the artist of the U. S. Exploring Expedition, greatly resembles that of *C. Thurberi:* it is a little larger, but has the same shape, and the same closely imbricated sepals on the ovary; the tube has about 100 sepals, and the white petals are acute; whether fleshy or not is uncertain.

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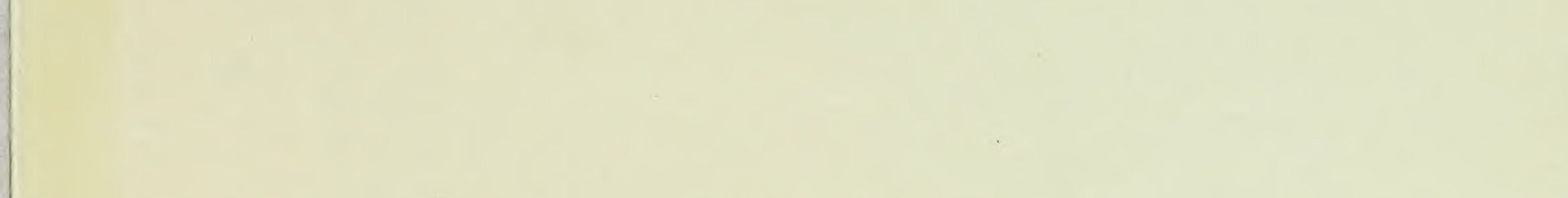
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Silliman's Journal
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NOTES ON CEREUS GIGANTEUS, Etc.

By C. Thurber

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